Supreme Court

New South Wales

Case Name:	Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 22)
Medium Neutral Citation:	[2019] NSWSC 1657
Hearing Date(s):	4 – 15 December 2017; 12 – 14 February 2018 (view), 19 – 28 February 2018; 1 – 22 March 2018, 26 – 29 March 2018; 4 – 5 April 2018, 9 – 12 April 2018;16 – 30 April 2018; 1 – 31 May 2018; 4 – 8 June 2018, 12 – 20 June 2018, 25 – 29 June 2018; 4 July 2018, 24 – 31 July 2018; 1 August 2018, 6 – 10 August 2018, 15 – 16 August 2018, 31 August 2018; 14 September 2018, 11 October 2018, 27 – 30 November 2018; 3 – 12 December 2018, 22 February 2019; 11 March 2019, 18 to 20 March 2019. Final written submission – 10 May 2019.
Date of Orders:	29 November 2019
Decision Date:	29 November 2019
Jurisdiction:	Common Law
Before:	Beech-Jones J
Decision:	Answers to common questions pronounced in accordance with Chapter 15. (1) The proceedings stand over to 9.30am on 21 February 2020 for directions; and (2) By no later than 7 February 2020 the parties are to confer as to the further progress of the proceedings.
Catchwords:	REPRESENTATIVE ACTIONS – property damage arising out of widespread urban flooding from Brisbane River escaping its banks in January 2011 – group defined by reference to ownership or interest in

property affected by flooding and whether group members or their insurer signed litigation funding agreement – lead plaintiff owned store affected by flooding – determination of all issues of fact and law affecting lead plaintiff – determination of all issues other than quantum affecting a sample of group members – determination of all issues affecting the respective obligations of the defendants to each other – determination of common questions identified relevant to plaintiff and all or many group members

FLOOD MITIGATION – dams located above major metropolitan area – dual function of water supply and flood mitigation – first defendant owner of dam and employer of two flood engineers on duty during flood event – second defendant contractor to first defendant and employer of senior flood operations engineer – third defendant employer of flood engineer – whether first defendant had statutory function of flood mitigation – statutory regulation of interference with watercourses – permissions granted to undertake flood mitigation – approval under statute of manual of flood operations – significance of manual to flood engineers controlling dams before, during and after flood events – manual does not have force of law but governs content of any duty of care and exempts dam owner from any liability if complied with – whether manual required use of rainfall forecasts in conduct of flood operations – whether manual required use of actual or predicted reservoir levels – role of experts in interpretation and application of manual – whether flood operations during previous flood events supported posited interpretation of the manual – relevance of events surrounding drafting of manual to its interpretation and application – whether flood engineers had reasonable belief as to construction and application of manual – whether peer professional practice at other dams permitted releases below full supply level

ADMINISTRATIVE LAW – whether regulatory regime permitted flood releases from below full supply level of each dam – validity of approval granted to dam owner

to make releases for flood mitigation from below full supply level – role of discretionary bases for refusing relief in determining a collateral challenge to executive action

NEGLIGENCE – DUTY OF CARE – dams located above major metropolitan area – dams controlled approximately half of downstream river flows – ultimate control of outflows from dam during flood event retained by dam owner but shared with flood engineers operating under Manual - risk posed to property owners from Brisbane river breaking its banks depending on their proximity to river and elevation – downstream property owners and those with interest in property vulnerable to negligent exercise of control over dams – size of affected class does not render class indeterminate – relevance of fact that rate of flow released is less than peak flow rate if dam not present - alleged inconsistency between posited duty and statute – whether duty imposes inconsistent obligations in favour of persons at different downstream locations – whether duty imposed on flood engineers inconsistent with duties to their employers – scope of duty provided by contractor proving engineering services – held duty owed by dam owner and flood engineers – duty owed by contractor but only in respect of provision of flood management services under contract

NEGLIGENCE – DUTY OF CARE – whether duty owned by dam owner or contractor a non-delegable duty – nature of activity conducted on dam owner's land – conduct of flood operations for ostensible benefit of downstream residents and property holders – not taking advantage of property to engage in dangerous activity – statutory provisions granting permission to dam owner to conduct flood mitigation not exhibiting strict non-delegability – held dam owner did not owe non-delegable duty – held contractor did not owe non-delegable duty

VICARIOUS LIABILITY – flood engineers – whether employee "pro hac vice" of second defendant –

necessity for high degree of control over performance of duties – not established – whether flood engineers performed independent legal duty such that third defendant not vicariously liable for conduct of flood engineer it employed – whether point properly pleaded – independent legal duty only denies vicarious liability if employee performing duty imposed by statute or by common law – common law imposes duties on those holding office – flood engineers neither performing duties imposed by statute or by common law – held each defendant vicariously liable for flood engineer they employed

NEGLIGENCE – STANDARD OF CARE – flood engineers – Civil Liability Act 2003 (Qld); s 36(1) – whether proceeding based on an alleged wrongful exercise of or failure to exercise a function of a public or other authority – whether such exercise was so unreasonable that no such authority could properly consider the act or omission to be a reasonable exercise of its functions – whether section confined to actions for breach of statutory duty – held section not so limited but not engaged in respect of any vicarious liability that the public authority incurs for breach by an employee of a duty of care owed by the employee – whether proceedings “based on” exercise of a “function of a public authority” – requirement for function conferred by governmental authority – held defendants not exercising any such function – Civil Liability Act 2003 (Qld); s 22(1) – no breach of duty by professional if established that “acted in a way that...was widely accepted by peer professional opinion by a significant number of respected practitioners in the field as a competent professional practice” – whether necessary to identify existing practice that was conformed with – practice of flood engineers and flood operations in Australia and overseas – all such practices conditioned by necessity to comply with water control manual – held in the absence of compliance flood engineers did not act in conformity with any practice – held relevant standard was that of the reasonably competent flood engineer

NEGLIGENCE – BREACH – allegations of breach governed by ss 9 and 10 of Civil Liability Act 2003 (Qld) – content of flood engineer's duty involved compliance with the manual – whether allegations of breach tied to necessity for flood engineers to make releases in conformity with counterfactual flood operations proposed by plaintiff's expert – not possible to comply throughout period of flood event as divergence between reservoir levels and counterfactual increased over time –counterfactuals and their reasoning inform allegations of breach – systemic failure of flood engineers to comply with manual over course of flood event – failure to select strategies and make releases by reference to rainfall forecasts – failure to conduct flood operations in accordance with priorities specified by manual – prioritisation of avoiding inundation of low lying bridges at expense of avoiding risk of urban inundation – breach established

NUISANCE – whether release of water from dam inundating plaintiff's store was an unreasonable interference with its use and enjoyment – relevance of fact that rate of water flow released less than peak river flow rate if dam not present – scope of defence of statutory authorisation and necessity – held unreasonable interference not established – defences would have failed

TRESPASS – whether release of water from dam inundating plaintiff's store was a trespass – necessity for intrusion to be immediate or direct result of defendant's actions – held trespass not established

NEGLIGENCE – CAUSATION – Civil Liability Act 2003 (Qld); s11 – necessity to identify "particular harm" – counterfactual flood operations – plaintiff's expert accepted – counterfactual simulation identified – use of hydraulic modelling to ascertain depth of flooding at relevant locations using simulated outflows from dam – reliability of modelling – approach to findings at particular locations – necessity to consider all the evidence relevant to each location as model not

determinative – future assessments to be conducted by reference to all such evidence but consistent with findings to date and forensic choices made by the parties

NEGLIGENCE – CAUSATION – successive tortfeasors causing combined state of affairs that caused harm – s11(1)(a) – material contribution – Strong v Woolworths – "jointly sufficient to account for the occurrence of the harm" – set of conditions necessary to the occurrence of harm – each tortfeasor's breach may not be sufficient to satisfy but combined effect of breaches of the tortfeasors are sufficient – held s 11(1)(a) established – scope of harm – s 11(1)(b) – whether individual tortfeasor responsible for harm caused by the combination of all such breaches – held attribution of liability for all harm caused appropriate

QUANTUM – loss of profits of business – out of date stock – treatment of charitable and similar payments that but for the flooding would not have been paid – grants made Rural and Regional Adjustment Act 1994 – statutory scheme for reimbursement of direct costs associated with flooding – held plaintiff and group members not entitled to recover costs the subject of grant payment - whether commercial cost of volunteers who cleaned plaintiff's premises and stock recoverable – measure of damage – whether provision of services intended to operate in the interests of the defendant and diminish damages otherwise payable – held costs recoverable at commercial rate – whether plaintiff can recover amount representing commercial cost of free storage provided for damaged stock – not an expense or a true consequential loss – held not recoverable

CIVIL PROCEDURE – cross-claims – Civil Liability Act 2003 (Qld); ss 28(1), 31(1), 32A – plaintiff's claim in negligence is proportionate claim – no claims in contribution maintainable – cross-claim by dam owner against contractor – seeking contractual indemnity for liability to plaintiff and group members as well as costs

– contractual exclusion for “indirect and consequential loss” – held exclusion applies – cross-claim fails

LIMITATION PERIODS – Limitation of Actions Act 1974 (Qld) – whether institution of representative proceedings in Supreme Court of New South Wales meant that “action...[was] brought” by group members within relevant period – held action brought

Legislation Cited:

Acts Interpretation Act 1954 (Qld)
Brisbane and Area Water Board Act 1979 (Qld)
Bureau of Industry Acts Amendment Act 1934 (Qld)
Civil Liability Act 2002 (NSW)
Civil Liability Act 2003 (Qld)
Civil Procedure Act 2005 (NSW)
Commissions of Inquiry Act 1950 (Qld)
Conservation and Land Management Act 1984 (WA)
Corporations Act 2001 (Cth)
Evidence Act 1995 (NSW)
Government Owned Corporations Act 1993 (Qld)
Income Tax Assessment Act 1936 (Cth)
Integrated Planning Act 1997 (Qld)
Interpretation Act 1987 (NSW)
Jurisdiction of Courts (Cross Vesting) Act 1987 (Qld)
Law Reform (Miscellaneous Provisions) Act 1946 (NSW)
Law Reform Act 1995 (Qld)
Limitation of Actions Act 1974 (Qld)
Migration Act 1958 (Cth)
Moreton Resource Operations Plan 2009 (Qld).
Professional Engineers Act 2002 (Qld)
Queensland Government Gazette, No 15, 22 January 2010
Queensland Government Gazette, No 55, 26 June 2008
Queensland Government Gazette, No 63, 16 March 2007
Queensland Government Gazette, No 93, 4 December 2009
Rural and Regional Adjustment Act 1994 (Qld)
Rural Fires Act 1997 (NSW)
Social Security Act 1947 (Cth)
South East Queensland Water (Restructuring) Act 2007 (Qld)

Sustainable Planning Act 2009 (Qld)
Water Act 2000 (Qld)
Water Amendment Act 2006 (Qld)
Water Resource (Moreton) Plan 2007 (Qld)
Water Supply (Safety and Reliability) Act 2008 (Qld)
Wivenhoe Dam and Hydro-Electric Works Act 1979 (Qld)

Cases Cited:

AD & SM McLean Pty Ltd v Meach [2005] VSCA 305; 13 VR 241
Agar v Hyde (2000) 201 CLR 552; [2000] HCA 41
Aircraft Technicians of Australia Pty Ltd [2011] QCA 188
Amaca Pty Ltd v Booth (2011) 246 CLR 36; [2011] HCA 53
Australian Securities and Investment Commission v Hellicar (2012) 247 CLR 347; [2012] HCA 17
Associated Provincial Picture Houses Ltd v Wednesbury Corporation [1948] 1 KB 223
Attorney-General (NSW) v Perpetual Trustee Co Ltd (1952) 85 CLR 237; [1952] HCA 2
Bankstown City Council v Alamdo Holdings Pty Ltd (2005) 223 CLR 660; [2005] HCA 46
Bankstown City Council v Zraika; Roads and Maritime Services v Zraika [2016] NSWCA 51
Barker v Permanent Seamless Floors Pty Ltd [1983] 2 Qd R 561
Benning v Wong (1969) 122 CLR 249; [1969] HCA 58
Blair v Deacon (1877) 57 LT 522
Blatch v Archer (1774) 1 Cowp 63; 98 ER 969
Blundell v Musgrave (1956) 96 CLR 73; [1956] HCA 66
Board of Fire Commissioners (NSW) v Ardouin (1961) 109 CLR 105; [1961] HCA 71
Bonnington Castings Ltd v Wardlaw [1956] AC 613
Breen v Williams (1996) 186 CLR 71; [1996] HCA 57
Brickhill v Cooke [1984] 3 NSWLR 396
Brodie v Singleton Shire Council (2001) 206 CLR 512; [2001] HCA 29
Browne v Dunn (1893) 6 ER 67 (HL)
Burnie Port Authority v General Jones Pty Ltd (1994) 197 CLR 520; [1994] HCA 13
Caledonian Collieries Ltd v Speirs (1957) 97 CLR 202; [1957] HCA 14

Caltex Refineries (Qld) v Stavar (2009) 75 NSWLR 649; [2009] NSWCA 258
Cameron v National Mutual Life Association of Australasia Ltd (No 2) [1992] 1 Qd R 133
Caparo Industries PLC v Dickman [1990] 2 AC 605
Coles Supermarkets Australia Pty Ltd v Bridge [2018] NSWCA 183
Commercial Union Assurance Company of Australia Ltd v Ferrcom Pty Ltd (1991) 22 NSWLR 389
Council of the Shire of Sutherland v Heyman (1985) 157 CLR 424; [1985] HCA 41
Crimmins v Stevedoring Industry Finance Committee (1999) 200 CLR 1; [1999] HCA 59
Crossley and Sons v Lightowler (1867) LR 2 Ch App 478
CSR Ltd v Eddy (2005) 226 CLR 1; [2005] HCA 64
Cubillo v The Commonwealth (No 2) (2000) 103 FCR 1
Dansar Pty Ltd v Byron Shire Council (2014) 89 NSWLR 1; [2014] NSWCA 364
Darling Island Stevedoring & Lighterage Co Ltd (1957) 97 CLR 36; [1957] HCA 26
Darlington Futures Ltd v Delco Australia Pty Ltd (1986) 161 CLR 500; [1996] HCA 82
Day v Ocean Beach Hotel Shellharbour Pty Ltd (2013) 85 NSWLR 335; [2013] NSWCA 250
Deepak Fertilisers and Petrochemicals Corp v ICI Chemicals & Polymers [1999] 1 Lloyd’s Rep. 493
Denham v Midland Employers Mutual Assurance Ltd [1955] 2 QB 437
Department of Transport v North West Water Authority [1984] 1 AC 336
Deutz Australia Pty Ltd v Skilled Engineering Ltd [2001] VSC 194; (2001) 162 FLR 173
Dobler v Halverson (2007) 70 NSWLR 151; [2007] NSWCA 355
Dovuro Pty Ltd v Wilkins (2003) 215 CLR 317; [2003] HCA 51
DPP v Head [1959] AC 83
Drexel London (a firm) v Gove (Blackman) [2009] WASCA 181
Electro-Optic Systems Pt Ltd v State of New South Wales (2014) 10 ACTLR 1; [2014] ACTA 45

Elston v Dore (1982) 149 CLR 480; [1982] HCA 71
Environmental Systems Pty Ltd v Peerless Holdings Pty Ltd [2008] VSCA 26
Esso Petroleum v Southport Corporation [1956] AC 218
Evans v Muller (1983) 151 CLR 117; [1983] HCA 16
F Hoffmann-La Roche & Co AG v Secretary of State for Trade and Industry [1975] AC 295
Federal Airports Corporation v Aerolineas Argentinas (1997) 76 FCR 582
Fletcher v Rylands (1866) LR 1 EX 265
Fostif Pty Ltd v Campbells Cash & Carry Pty Ltd (2005) 63 NSWLR 203; [2005] NSWCA 83
Fowles v Eastern and Australian Steamship Co Ltd [1916] 2 AC 556
Frugtniet v Attorney-General of NSW (1997) 41 NSWLR 588
Gales Holdings Pty Ltd v Tweed Shire Council (2013) 85 NSWLR 514; [2011] NSWSC 1128
Gartner v Kidman (1962) 108 CLR 12; [1962] HCA 27
Graham Barclay Oysters Pty Ltd v Ryan (2002) 211 CLR 540; [2002] HCA 54
Griffiths v Kerkemeyer (1977) 139 CLR 161; [1977] HCA 45
Hadley v Baxendale (1854) 9 Exch 341
Haines v Bendall (1991) 172 CLR 60; [1991] HCA 15
Hamcor Pty Ltd v Queensland [2014] QSC 224
Hazelwood v Webber (1934) 52 CLR 268; [1934] HCA 62
Heydon v NRMA Ltd (2000) 51 NSWLR 1; [2000] NSWCA 374
Hill v Van Erp (1997) 188 CLR 159; [1997] HCA 9
Hollis v Vabu Pty Ltd (2001) 207 CLR 21; [2001] HCA 44
Holman v Irvine Harbour Trustees (1877) 4 Sess Cas. (4th series) 406
Hossain v Minister for Immigration and Border Protection [2018] HCA 34
Hunt & Hunt v Mitchell Morgan Pty Ltd (2013) 247 CLR 613; [2013] HCA 23
Hunter and New England Local Health District v McKenna; Hunter and New England Local Health District v Simon (2014) 253 CLR 270; [2014] HCA 44

Ibrahimi v Commonwealth of Australia [2018] NSWCA 321
Iodice v State of New York 247 App Div 647
Jacobs v Onesteel Manufacturing Pty Ltd and WorkCover Corporation of SA [2006] 93 SASR 568
Jadwan Pty Ltd v Secretary, Department of Health and Aged Care (2003) 145 FCR 1
John Pfeiffer Pty Ltd v Canny (1981) 148 CLR 218; [1981] HCA 52
John Pfeiffer Pty Ltd v Rogerson (2000) 203 CLR 503; [2000] HCA 36
Jones v Dunkel (1959) 101 CLR 298; [1959] HCA 8
Kelly v Bluestone Global Ltd (In liq) [2016] WASCA 90
Kraemers v A-G (Tas) [1966] Tas SR 113
Kuhl v Zurich Financial Services Australia Ltd (2011) 243 CLR 361; [2011] HCA 11
Leichhardt Municipal Council v Montgomery (2007) 230 CLR 22; [2007] HCA 6
Little v Commonwealth (1947) 75 CLR 94; [1947] HCA 24
Manser v Spry (1994) 181 CLR 428; [1994] HCA 50
March v Stramare (E & MH) Pty Ltd (1991) 171 CLR 506; [1991] HCA 12
Marcic v Thames Water Utilities Ltd [2002] QB 929
Marsh v Baxter [2015] WASCA 169
Masterton Homes Pty Ltd v Palm Assets Pty Ltd [2009] NSWCA 234
McDonald v Commonwealth (1945) 46 SR (NSW) 129
McKenna v Hunter & New England Local Health District; Simon v Hunter & New England Local Health District [2013] NSWCA 476
Melaleuca Estate Pty Limited v Port Stephens Council (2006) 143 LGERA 319; [2006] NSWCA 31
Mersey Docks and Harbour Board v Coggins & Griffith (Liverpool) Ltd [1947] AC 1; [2006] NSWCA 31
Metropolitan Gas Co v Melbourne Corporation (1924) 35 CLR 186; [1924] HCA 46
Minister for Immigration and Multicultural Affairs v Bhardwaj (2002) 209 CLR 597; [2002] HCA 11
Mules v Ferguson [2015] QCA 5
National Insurance Company of New Zealand Ltd v Espagne (1961) 105 CLR 569; [1961] HCA 15
NU v NSW Secretary of Family and Community

Services (2017) 95 NSWLR 577; [2017] NSWCA 221
Obeid v R (2015) 91 NSWLR 226; [2015] NSWCA 309
Oceanic Crest Shipping Co v Pilbara Harbour Services (1986) 180 CLR 626; [1986] HCA 34
Ousley v The Queen (1997) 192 CLR 69; [1997] HCA 49
Parker v Commonwealth (1965) 112 CLR 295; [1965] HCA 12
Perisher Blue Pty Ltd v Nair-Smith (2015) 90 NSWLR 1; [2015] NSWCA 90
Perre v Apand (1999) 198 CLR 180; [1999] HCA 36
Powercor Australia Ltd v Thomas [2012] VSCA 87
Precision Products (NSW) Pty Limited v Hawkesbury City Council (2008) 74 NSWLR 102; [2008] NSWCA 278
Pride of Derby & Derbyshire Angling Association Ltd v British Celanese Ltd [1952] 1 TLR 1013
Prince Alfred College Incorporated v ADC (2016) 258 CLR 134; [2016] HCA 37
Provender Millers (Winchester) Ltd v Southampton County Council (1940) Ch 131
Puntoriero v Water Administration Ministerial Corporation (1999) 199 CLR 575; [1999] HCA 45
Pyrenees Shire Council v Day(1998) 192 CLR 330; [1998] HCA 3
Quick v Alpine Nurseries Sales Pty Ltd [2010] NSWSC 1248
R v Birks (1990) 19 NSWLR 677
R v Boston (1923) 33 CLR 386; [1923] HCA 59
Raben Footwear Pty Ltd v Polygram Records Inc (1997) 75 FCR 88
Re Anti-Cancer Council (Vict); Ex parte State Public Services Federation (1992) 175 CLR 442; [1992] HCA 53
Re NSW Grains Board [2002] NSWSC 913
Re Refugee Review Tribunal; Ex parte Aala (2000) 204 CLR 82; [2000] HCA 57
Redding v Lee (1983) 151 CLR 117; [1983] HCA 16
Regent Holdings Pty Ltd v State of Victoria [2013] VSC 601
Regional Power Corporation v Pacific Hydro Group Two Pty Ltd (No 2) (2013) 46 WAR 281
Renmark Hotel Inc v Federal Commissioner of

Taxation (1949) 79 CLR 10; [1949] HCA 7
Reynolds v Clarke (1725) 2 Ld Raym 1399; Reynolds v Clerk (1725) 88 ER 193
Roads and Traffic Authority of NSW v Dederer (2007) 234 CLR 330; [2007] HCA 42
Robinson Helicopter Company Incorporated v McDermott [2016] HCA 22; (2016) 90 ALJR 679
Robinson v West Yorkshire Chief Constable [2018] 2 WLR 595
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority t/as Seqwater [2014] NSWSC 1565 (No 1)
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority t/as Seqwater (No 3) [2015] NSWSC 838
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 9) [2017] NSWSC 1116
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 10) [2018] NSWSC 149
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 12) [2018] NSWSC 415
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 18) [2018] NSWSC 1828
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 20) [2019] NSWSC 287
Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 21) [2019] NSWSC 294
Rogers v Whitaker (1992) 175 CLR 479; [1992] HCA 58
Rylands v Fletcher (1868) LR 3 HL 330
Savory v Holland and Hannen & Cubitts (Southern) Ltd [1964] 3 All ER 18
Scenic Tours Pty Ltd v Moore [2018] NSWCA 238
Shirt v Wyong Shire Council [1978] 1 NSWLR 631
Silk Bros Pty Ltd v State Electricity Corporation of Victoria (1943) 76 CLR 1; [1943] HCA 2
Soh v The Commonwealth (2008) 220 FCR 127;

[2008] FCA 520
South West Sydney Local Health District v Gould [2018] NSWCA 69
Southern Properties (WA) Pty Ltd v Department of Conservation and Land Management (2012) 42 WAR 287
Southport Corporation v Esso Petroleum Co Ltd (1954) 2 QB 182
Sparks v Hobson; Gray v Hobson [2018] NSWCA 29
Stanbury v Exeter (1905) 2 KB 838
State of NSW v Briggs [2016] NSWCA 344
State Rail Authority of New South Wales v Brown (2006) 66 NSWLR 540
Strong v Woolworths (2012) 246 CLR 182; [2012] HCA 5
Stuart v Kirkland-Veenstra (2009) 237 CLR 215; [2009] HCA 15
Sullivan v Moody (2001) 207 CLR 562; [2001] HCA 59
Sydney South West Area Health Service v MD [2009] NSWCA 343
Sydney Water Corporation v Turano (2009) 239 CLR 51; [2009] HCA 42
Sykes v Cleary (1992) 176 CLR 77; [1992] HCA 60
Tabet v Gett (2010) 240 CLR 537; [2010] HCA 12
Tame v New South Wales; Annetts v Australian Stations Pty Ltd (2011) 211 CLR 317; [2002] HCA 35
Thomas & Evans Ltd v Mid-Rhondda Co-operative Society Ltd (1941) 1 KB 381
Thorpe v Brumfitt (1873) LR 8 Ch App 650
Timbarra Protection Coalition Inc v Ross Mining NL (1999) 46 NSWLR 55; [1999] NSWCA 8
Transfield Services (Australia) Pty Ltd v Hall (2008) 75 NSWLR 12
Uniting Church in Australia Property Trust (NSW) v Miller; Miller v Lithgow City Council (2015) 91 NSWLR 752; [2015] NSWCA 320
University College Cork – National University of Ireland v Electricity Supply Board [2018] IECA 82
Vairy v Wyong Shire Council (2005) 223 CLR 422; [2005] HCA 62
Vines v ASIC (2007) 73 NSWLR 451; [2007] NSWCA 126
Wallace v Kam (2013) 250 CLR 375; [2013] HCA 19

	Weber v Greater Hume Shire Council [2019] NSWCA 74 West v Mead [2003] NSWSC 161 Williams v Commonwealth of Australia (2012) 248 CLR 156; [2012] HCA 23 Wollington v State Electricity Commission of Victoria (No 2) [1980] VR 91 Woolcock Investments Pty Ltd v CDG Pty Ltd (2004) 216 CLR 515; [2004] HCA 16 Wyong Shire Council v Shirt (1980) 146 CLR 40; [1980] HCA 12 Zheng v Cai (2009) 239 CLR 446; [2009] HCA 52 Zuijs v Wirth Brothers Pty Ltd (1955) 93 CLR 561; [1955] HCA 73
Texts Cited:	Aronson, Groves and Weeks, Judicial Review of Administrative Action and Government Liability (6th ed, 2017, Thomson Reuters) Balkin and Davis, The Law of Torts (5th ed, 2013, Lexisnexis Butterworths) Edelman, McGregor on Damages (20th ed, 2018, Thomson Reuters) Fleming, The Law of Torts (9th ed, 1998, The Law Book Company) Hart and Honoré, Causation in the Law (2nd ed, 1985, Clarendon Press) Leeming, Statutory Foundations of Negligence (2019, The Federation Press) Pilgrim et al., Australian Rainfall and Runoff (3rd ed, 1987, Institution of Engineers Australia)
Category:	Principal judgment
Parties:	Rodriguez & Sons Pty Limited (Plaintiff) Queensland Bulk Water Supply Authority t/as Seqwater (First Defendant) SunWater Limited (Second Defendant) State of Queensland (Third Defendant)
Representation:	Counsel: J Sexton SC; N Owens SC; R Yezerski; J Taylor (Plaintiff) B O'Donnell QC; A Pomerenke QC; D Piggott; D Klineberg (First Defendant) D Williams SC; HJA Neal; N Simpson; A Barnett

(Second Defendant)
GA Thompson QC; JM Horton QC; E Morzone (Third Defendant)

Solicitors:
Maurice Blackburn Pty Ltd (Plaintiff)
King & Wood Mallesons (First Defendant)
Norton Rose Fulbright (Second Defendant)
Crown Solicitor for the State of Queensland (Third Defendant)

File Number(s): 2014/200854

JUDGMENT

TABLE OF CONTENTS

****

CHAPTER 1: SUMMARY

1 These representative proceedings arise out of the large-scale flooding that occurred in the greater Brisbane and Ipswich area from on or around 11 January 2011. Before I summarise the nature of the proceedings and the findings made in the balance of this judgment, three matters should be noted.

2 First, the obvious question that arises is why these proceedings were heard in the Supreme Court of New South Wales when every relevant fact, matter and circumstance occurred in Queensland? Although it is surmise on my part, the answer appears to be that, at the time these proceedings were commenced, there were no legislative provisions in force governing representative actions in the Supreme Court of Queensland. Such provisions are now operative.[1] Thus, the hearing of this case in this State appears to be an accident of time. For the sake of completeness, I note that this Court's jurisdiction to hear the matter derives (at least in part) from s 4(1) of the *Jurisdiction of Courts (Cross Vesting) Act 1987* (Qld).

3 Second, on the afternoon and evening of 10 January 2011, severe flash flooding occurred in Toowoomba and the Lockyer valley including the towns of Helidon and Grantham. Tragically, a number of people lost their lives. That flooding is not the subject matter of this case. There is no relevant connection between the conduct of any of the defendants and the occurrence of that flooding. Instead, the large increase in flows in Lockyer Creek that occurred on that day is simply part of the factual background to the "over the floor" flooding that was occasioned at other places in the Brisbane River catchment on 11 and 12 January 2011 (and beyond).

4 Third, during 2011 and 2012 a Commission of Inquiry constituted under the *Commissions of Inquiry Act 1950* (Qld) was conducted into various matters concerning the flooding the subject of these proceedings (the "QFCI"). Parts of the evidence before that inquiry were tendered in these proceedings as were some of its recommendations.[2] However, the bulk of the evidence before the

[1] See Part 13A of the Civil Proceedings Act 2011 (Qld).
[2] See for example Chapter 7 at [480].

QFCI and its report were not tendered and therefore could not be considered by this Court. I have not read the QFCI report.

Background

5 Like the situation at present, from 2001 to 2008 severe drought was experienced in eastern Australia, including South East Queensland. By 2009 the drought had broken. Towards the end of calendar year 2010 significant rainfall was expected and fell in South East Queensland as the effect of a "La Niña" climate phase took hold. The rainfall caused the declaration of a number of so-called "flood events" and the conduct of flood operations at Wivenhoe Dam and Somerset Dam in the last three months of 2010.

6 By early January 2011, the catchment area of the Brisbane River[3] was saturated. Despite significant flood releases having been made during December 2010, as at early January 2011, each dam was above its so-called "Full Supply Level" ("FSL").[4]

7 Although the period from 2 January 2011 was referred to as the "January 2011 Flood Event", releases for flood mitigation from Wivenhoe Dam and Somerset Dam ceased on that day. They would not resume again until the afternoon of 7 January 2011. From 3 January 2011, various weather forecasts began to predict significant rainfall over the Brisbane River basin, including the catchments above the dams. These forecasts steadily increased and became ominous over the following days. Significant amounts of rain fell in the Brisbane River basin, including in the catchments above the dams, on 5 January 2011. It continued for the next two days, although it eased on Saturday 8 January 2011.

8 On Sunday 9 January 2011, the heavens opened. Over that day and the following two days rainfall totals approximating 350mm to 400mm in depth were experienced in the catchment areas above the dams.[5] The rainfall on 11 January 2011 in the area of Wivenhoe Dam was of biblical proportions.[6] Extreme rainfall was also experienced during this period in the catchments

[3] This being the "Brisbane River basin": see Chapter 2, Figure 2-1.
[4] A list of various technical phrases used in the judgment is set out in Appendix A.
[5] See Chapter 6; Table 6-1.
[6] See Chapter 7 at [374]; Table 7-3.

downstream of the dams, especially in the Lockyer Valley which caused a significant increase in the flow of water in Lockyer Creek. Lockyer Creek flows into the Brisbane River just downstream of Wivenhoe Dam.[7] Extreme rain also fell in the catchment area for the Bremer River. The Bremer River flows through Ipswich and into the Brisbane River at a point 16 hours flow time downstream of Wivenhoe Dam and just above Moggill, a suburb of Brisbane.[8] The central business district of Brisbane is a further 10 hours flow time downstream of Moggill.[9]

9 During 11 January 2011, the rate of inflow of water into Wivenhoe Dam increased rapidly, so much so that by 10.00am the rate was over 10,000m3/s. The level of Wivenhoe Dam rose well above Elevation Level ("EL") 74.0m Australian Height Datum ("AHD"). That level is recognised by the "Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam" (the "Manual")[10] as a point at which a consideration of Wivenhoe Dam's safety predominates.[11] From around 8.00am on 11 January 2011, the flood engineers responsible for flood operations at both dams directed that there be further openings of the radial gates at Wivenhoe Dam in an attempt to address the rising reservoir levels.[12] This continued until 7.00pm that evening, by which time the reservoir level had stabilised at a height of EL 74.97 AHD. Thereafter it began to slowly drop. The peak rate of outflows from the dam was 7464m3/s.[13]

10 The Manual designated a flow rate of 4000m3/s in the Brisbane River at Moggill as the threshold point at which homes and businesses downstream of the dams would commence to be flooded.[14] The flows in the Brisbane River at Moggill comprise the outflows from Wivenhoe Dam as well as outflows from Lockyer Creek and the Bremer River into the Brisbane River. Unfortunately, to a significant extent the large increase in outflows from Wivenhoe Dam

[7] Chapter 2; Figure 2-6.
[8] Id.
[9] Id.
[10] QLD.001.001.0146; see Chapter 3.
[11] See Chapter 3 at [61] and section 3.3.11.
[12] Chapter 7 at [378]; Table 7-4.
[13] Id.
[14] The "upper limit of non-damaging floods": Chapter 3 at [56].

coincided with large outflows from Lockyer Creek and the Bremer River. The peak flow rate experienced at Moggill was at around 1.00pm to 2.00pm on 12 January 2011. It was between 10,420m3/s and 10,700m3/s, of which between 4200m3/s and 5300m3/s was attributable to releases from Wivenhoe Dam.[15]

11 The flooding of homes and businesses in areas proximate to the Brisbane River, the lower Bremer River and the lower part of Lockyer Creek commenced on 11 January 2011 and continued through at least the following day. The distress, dislocation and heartache that was occasioned by the flooding was taken as a given in the proceedings.

The Parties

12 The plaintiff, Rodriguez and Sons Pty Ltd, was one of the many affected by the flooding. As at January 2011, it conducted a retail sporting goods and clothing store under the name "Sports Power Fairfield" from within the Fairfield Gardens shopping centre in Fairfield. Fairfield is approximately five kilometres south east of the central business district of Brisbane.

13 Vincente Rodriguez was the sole director of the plaintiff. At around midday on 11 January 2011 he was contacted by his wife, Maria, and told that the management of the shopping centre had advised that all the retail outlets had to be closed by 12.00pm due to the risk of flooding.[16] He rushed to the store and assisted his wife to stack expensive items of stock on elevated tables.[17] They then left to secure their home before returning the next morning at 6.00am with other members of the family to remove and store stock.[18] They were forced to leave at around 11.30am as flood waters were approaching the entrance to the shopping centre.

14 Mr Rodriguez and his family were not able to return to the store until 16 January 2011. When they did so they discovered the flooding had, in Mr Rodriguez's words, "devastated the shop".[19] The extent of the inundation and

---

[15] Chapter 7 at [404].
[16] LAY.ROD.001.0001 at [77].
[17] Ibid at [79].
[18] Ibid at [88].
[19] Ibid at [93].

the nature of the damage they suffered are addressed later in this judgment.[20] As fate would have it, the Rodriguez family home in Graceville was also devastated by flooding. Whether any of the defendants are legally responsible for the damage occasioned there was not litigated during this phase of the proceedings.

15 In these proceedings, the plaintiff seeks to recover for the loss and damage occasioned by the inundation of its store. This includes the loss of stock, clean-up costs and lost profits for the period in which it could not trade and for a period thereafter.

16 As noted, these are representative proceedings under Part 10 of the *Civil Procedure Act 2005* (NSW). The plaintiff brings the proceedings on its own behalf and on behalf of a group of persons who satisfy the group definition and have not opted out of the proceedings.[21]

17 The group definition has two limbs, both of which must be satisfied. To satisfy the first limb, the group member must have suffered one or both of two subcategories of damage. The first subcategory concerns persons that held an interest in land and either suffered loss or damage from the inundation of that land by flood water from the Brisbane River or Bremer River or their tributaries in the period from 9 January 2011 to 24 January 2011 or had their use or enjoyment of that land interfered with by reason of that inundation such that they suffered loss and damage.[22] The other subcategory is persons who owned personal property in that period which was damaged or destroyed by the inundation of land on which it was located by flood water from the Brisbane River or Bremer River or their tributaries during the same period.[23] The second limb of the group definition is that either the group member or an insurer who has indemnified them for loss arising out of the subject matter of the proceeding must have entered into a litigation funding agreement with IMF Bentham Limited.[24]

---

[20] Chapter 13 and Chapter 14.
[21] Civil Procedure Act 2005 (NSW); s 162.
[22] Fifth Further Amended Statement of Claim ("5ASOC"), PLE.010.001.0001 at .0009, [6(a)(i) and (ii)].
[23] Ibid at [6(b)].
[24] Ibid at [6(d)].

18 There are approximately 6870 persons or entities who are group members. They are named in the schedule to a statement of claim filed in a parallel set of proceedings commenced by one of the group members, Ms Lynette Lynch (the "Lynch proceedings").[25] Those proceedings were commenced to address a potential issue that arose concerning the application of the *Limitation of Actions Act 1974* (Qld) to representative proceedings filed in this Court. The Lynch proceedings were stayed pending the outcome of these proceedings on terms that the parties to those proceedings would be bound by the findings in these proceedings.

19 There are three defendants to these proceedings namely, Queensland Bulk Water Supply Authority trading as Seqwater ("Seqwater"), SunWater Limited ("SunWater") and the State of Queensland (the "State").

20 Seqwater was established by section 6 of the *South East Queensland Water (Restructuring) Act 2007* (Qld). Seqwater was vested by statute with ownership of Wivenhoe and Somerset Dams and the land on which they are located. Seqwater received statutory permissions enabling it to interfere with the flow of water in the Brisbane River for the purpose of operating the dams for flood mitigation and water supply. There was a dispute about whether it was conferred with a statutory function of flood mitigation.[26] Seqwater was the employer of two of the four flood engineers who were either on duty or conducting flood operations during the January 2011 Flood Event, namely Mr Terry Malone and Mr John Tibaldi.[27]

21 At all relevant times SunWater was a government owned corporation within the meaning of s 5 of the *Government Owned Corporations Act 1993* (Qld). It is a public company registered under the *Corporations Act 2001* (Cth). As at January 2011, SunWater was contracted to provide flood management services to Seqwater. SunWater was the employer of the one of the four flood engineers, Mr Robert Ayre. Mr Ayre was the Senior Flood Operations Engineer.

---

[25] Proceedings number: 2016/373183.
[26] Chapter 2; section 2.1.
[27] A dramatis personae is Appendix B to this judgment.

22 The State is sued as the employer of the fourth flood engineer, Mr John Ruffini.

23 Each of Messrs Malone, Tibaldi and Ayre gave evidence in the proceedings. Mr Ruffini did not.

The Plaintiff's Case: Overview

24 The following is just a brief précis of the principal contentions made by the plaintiff and the defendants.

25 The plaintiff sues each of the defendants in negligence, nuisance and trespass.[28] The plaintiff pleaded that each of Seqwater, SunWater and the flood engineers owed a class of persons, including itself and the other group members, a duty to take reasonable care in the conduct of flood operations at both dams to avoid the type of harm referred to in the group definition.[29] In the case of Seqwater and SunWater, the plaintiff contended that the duty of care they owed was a non-delegable duty, that is a duty to ensure reasonable care was taken in the conduct of flood operations, specifically by the flood engineers. Otherwise, the plaintiff contended that each of Seqwater, SunWater and the State are vicariously liable for any breaches of any duty of care owed by the flood engineers to the plaintiff and group members.[30]

26 At the heart of the plaintiff's case is the contention that during the period from 2 January 2011 to 10 January 2011 the flood engineers were obliged but failed to evacuate water from the dams in advance of rainfall predicted by rainfall forecasts. Critical to this allegation is the contention that the content of any duty of care owed by the flood engineers in relation to flood operations was governed by the Manual. The plaintiff contended that, irrespective of the approach at other dams, the Manual unambiguously required the use of forecasts in conducting flood operations, especially the selection of flood strategies by reference to predictions about reservoir levels based on rainfall forecasts and the making of releases from the dams, determined at least in part by reference to forecast rainfall. The plaintiff also contended that the Manual embodied an overall risk management approach to flood operations.

---

[28] It also seeks recovery from the State under former s 374(3) of the Water Supply (Safety and Reliability) Act 2008 (Qld).
[29] 5ASOC at [144(a)] and [148(a)]; Chapter 11 at [3].
[30] 5ASOC at [365], [370] and [374].

This was said to require that releases from the Dams be made with a view to minimising the risk of urban damage, as well as dam failure, at the expense of the disruption to local communities caused by the inundation of bridges that span the upper part of the Brisbane River below Wivenhoe Dam as well as the risk to the water supply if the full supply level of water was not retained in the dams following the completion of flood operations.

27 The plaintiff contended that the flood engineers comprehensively failed to apply the Manual throughout the flood event. The plaintiff contended that they were obliged but failed to continue flood operations from 2 January 2011. The plaintiff contended that the flood engineers waited too long before resuming releases from Wivenhoe Dam on the afternoon of 7 January 2011 and thereafter made releases at too low a rate until well into 10 January 2011 when storage space in Wivenhoe Dam below EL 74.0m AHD was almost exhausted. The plaintiff contended that the loss of storage space in the dams from the flood engineers' conduct of flood operations culminated in releases having to be made at Wivenhoe Dam from above EL 74.0m AHD on 11 and 12 January 2011 to address dam safety concerns. The plaintiff contended that, contrary to the Manual, to the extent that the flood engineers applied any flood strategy in the Manual they did so by selecting a strategy based on the actual level of water in Wivenhoe Dam and not the level predicted by the use of rainfall forecasts.

28 Although the plaintiff made many complaints about the flood engineers' approach to releases, three related complaints predominated. The first was that, in determining the amount of water to release, the flood engineers only based their releases on an estimate of inflows determined by rain that had already fallen, so called "rain on the ground", and thus effectively ignored rain that was forecast. The second was that the flood engineers wrongly prioritised avoiding the inundation of the bridges just referred to at the expense of avoiding or minimising the risk of urban inundation. The third was that, while not considering any estimate of inflows based on forecasts in deciding to make releases, the flood engineers simultaneously modelled making releases for many days into the future which necessarily assumed that rain would not fall in

significant amounts downstream of the dams and thus permit the releases to be made.

29 Although there was a great deal of expert evidence,[31] two expert witnesses were of particular significance to the plaintiff's case.

30 The first such expert was Dr Ronald Christensen, a civil engineer from Utah with expertise in hydrology. In his reports and oral evidence, Dr Christensen construed the Manual, critiqued the conduct of the flood engineers and set out ten different scenarios representing simulated alternative flood operations at Wivenhoe and Somerset Dams. The position of a flood engineer is in one sense sui generis in that it can be performed by persons with different forms of qualifications, specifically in engineering, hydrology and meteorology.[32] Whether Dr Christensen was suitably qualified to undertake such a role and comment on the conduct of others performing such a role was one of the issues in the proceedings. The plaintiff relied on Dr Christensen's evidence and simulations both as material informing its analysis of the allegations of breach of duty levelled at the flood engineers and as the basis for its case on causation. The plaintiff put forward Dr Christensen's simulations as embodying the counterfactual flood operations that it says a reasonably competent flood engineer would have undertaken during the January 2011 Flood Event but for the flood engineers' breaches of duty.[33]

31 The differences between the ten simulations put forward by Dr Christensen reflected different starting dates for the counterfactual flood operations and different governing assumptions, which in turn reflected different aspects of reasonably competent flood operations that the plaintiff contended should have been adopted. Two governing assumptions are of particular relevance. The first concerns what period of forecast, and thus what forecast product, a reasonably competent flood engineer was required to utilise in flood operations? The second is whether a reasonably competent flood engineer

[31] Appendix C to this judgment sets out the professional qualifications of the expert witnesses and the witnesses with expertise.
[32] See Chapter 3 at [11].
[33] Save for the possibility referred to in Rodriguez & Sons Pty Ltd v Queensland Bulk Water Supply Authority trading as Seqwater (No 9) [2017] NSWSC 1116 at [29] to [30].

would have made releases below the full supply levels for each of the dams during flood operations and, if so, how far below?

32 As an indication of the extent of the dispute over Dr Christensen's evidence, he was cross examined for 22 days during the hearing. Over 370 pages of this judgment are devoted to a consideration of Dr Christensen's evidence and simulations as well as the defendants' attacks on both.

33 The second expert that was of particular significance to the plaintiff's case was Dr Mustafa Altinakar. Dr Altinakar is a highly qualified mathematician. He is the Director and Research Professor at the National Centre for Computational Hydroscience and Engineering at the University of Mississippi. Using his "DSS-WISE" software, Dr Altinakar undertook two-dimensional numerical modelling, simulation and mapping of the January 2011 Flood Event and its effects across the Brisbane River catchment. He produced a mathematical model which the plaintiff contended could be manipulated by altering the discharge outflows from Wivenhoe Dam to accord with Dr Christensen's simulations. The plaintiff contended that Dr Altinakar's modelling was sufficiently robust to enable findings to be made as to the depth of flooding under Dr Christensen's simulations for locations of 10m x 10m size within the area of the model and, to the extent necessary, for the actual flooding that ensued during the January 2011 Flood Event.

34 Thus the plaintiff contended that Seqwater, SunWater and the flood engineers breached the duty of care they owed to it, that the proper discharge of that duty required the adoption of at least one or more of Dr Christensen's simulations and that, using Dr Altinakar's modelling and supplemented by other evidence including that provided by Mr Rodriguez, if outflows from Wivenhoe Dam had substantially accorded with the relevant simulation, then the plaintiff's store and the shopping centre it formed part of would not have been inundated. The plaintiff then seeks to extend this reasoning to other group members.

The Defendants' Case: Overview

35 The defendants took issue with each and every aspect of the plaintiff's case. The defendants contended that the conduct of the flood engineers throughout the January 2011 Flood Event was consistent with both the Manual and

accepted professional practice at other dams and amongst other flood engineers. They contended that, on its proper construction, the Manual did not require the use of forecasts in either the selection of flood strategy or the making of releases or, at the very least, the flood engineers reasonably believed that to be the case. They contended that rainfall forecasts were far too uncertain to be used for those purposes in flood operations. They contended that at least some of the flood strategies under the Manual were dictated by the actual level of the dams and that otherwise the only proper course, given the uncertainties in predicting and modelling forecast rainfall, was to model rain on the ground for the purpose of flood operations, including in making releases. They contended that the flood engineers used rainfall forecasts to ascertain a so-called "situational awareness" of the flood event and in deciding to reduce releases on account of downstream flows. They contended that form of use of rainfall forecasts during the January 2011 Flood Event was more than sufficient to comply with the Manual.

36 The defendants also contended that the flood engineers' approach was supported by a number of experts that were called to give evidence as to the proper conduct of flood operations including expert flood engineers, as well as experts in meteorology and hydrology. To the extent that there was any ambiguity in the Manual, Seqwater and SunWater contended that the revision of the previous version of the Manual reinforced the reasonableness of the interpretation and approach adopted by the flood engineers. Further, the defendants contended that both the Manual and the relevant legislative regime precluded the flood engineers from making releases from below FSL at either of Wivenhoe Dam or Somerset Dam.[34]

37 The defendants were highly critical of Dr Christensen's evidence. They variously contended he was unqualified, dishonest and that he consciously or unconsciously used hindsight to tailor his opinions and simulations. They contended that his methodology was untested and unendorsed by any other expert, that it was affected by errors, inconsistent with the Manual and that its various assumptions were either falsified or not made out. Both Seqwater and

[34] Save that both SunWater and the State accepted that it could be reduced FSL but only to allow for refill by baseflow: see Chapter 5 at [91].

SunWater contended that the plaintiff's pleaded case on breach of duty was tied to establishing that the flood engineers failed to act in accordance with one of those simulations and contended that the plaintiff's submissions did not reflect that.

38 The defendants also contended that Dr Altinakar's modelling was wholly unreliable for use in the manner contended for by the plaintiff. The various criticisms included that it was poorly calibrated, lacked the necessary verification to historical flooding and used incorrect or unreliable inflow discharges at two of its boundaries namely Lockyer Creek and the upper Bremer River.

39 Seqwater and SunWater denied that they owed any duty of care, much less a non-delegable duty. All of the defendants denied that the flood engineers owed any duty of care. Even if there was a duty owed, it was contended that each of the allegations of breach of duty had to be assessed by reference to s 36(2) of the *Civil Liability Act 2003* (Qld) ("CLA (Qld)"). That provision concerns proceedings "based on an alleged wrongful exercise of or failure to exercise a function of a public or other authority" and provides that any act or omission of such an authority does not constitute a wrongful exercise or failure "unless the act or omission was … so unreasonable that no public or other authority having the functions of the authority in question could properly consider the act or omission to be a reasonable exercise of its functions."

40 It was also contended that, to the extent that the flood engineers' conduct was being considered, then each of them "acted in a way that ... was widely accepted by peer professional opinion by a significant number of respected practitioners in the field as competent professional practice", such that by operation of s 22(1) of the *CLA* (Qld) the flood engineers could not be found to have breached any duty of care they owed.

41 Both Seqwater and the State denied that they were vicariously liable for any breaches of duty by the flood engineers they employed. All the defendants denied that there was any unreasonable interference with the use and enjoyment of the plaintiff's or any other group member's interest in land sufficient to amount to a nuisance.

The Hearing and Issues for Determination

42 The substantive hearing of this phase of the proceedings commenced with opening addresses on 4 December 2017. They continued until 12 December 2017. A view of the shopping centre in Fairfield and other relevantly affected properties, both dams, the downstream bridges and other relevant locations in the Brisbane River catchment was conducted over three days from 12 to 14 February 2018. The hearing resumed with the calling of the first witness, Mr Rodriguez, on 19 February 2018. It continued until September 2018. During October and November 2018 over 1600 pages of written submissions were filed. Further evidence was filed and argument over the reception of that evidence took place on 27 November 2018. Oral submissions commenced on 28 November 2018 and concluded on 12 December 2018. Dr Altinakar gave further oral evidence from 18 to 20 March 2019. Further written submissions were filed after that. The last written submission was received on 10 May 2019.[35]

43 The transcript of the proceedings exceeds 10,000 pages. Over 2100 pages of written submissions were filed. The text of the witness statements and experts' reports occupies over 50 volumes. The electronic database contains over 26,000 documents including over 700 spreadsheets. It is appropriate to note that the task of considering this material and preparing this judgment would not have been possible without the tireless professionalism of my associate[36] and tipstaves.[37]

44 This phase of the hearing was directed to resolving four sets of issues that were (finally) identified by orders made by the Court on 14 September 2018. The first set is "all issues of fact and law that arise from the claims brought by the plaintiff in its personal capacity". The second set is "all issues of fact and law (except for assessment of damages)" that arise from the claims of a selected sample of the group members, namely Mr John and Mrs Betty Keller, Ms Lynch, Ms Sharon Visser and Ms Lynette Harrison (the "sample group members"). The third set of issues is the respective rights and liabilities of the

[35] SBM.030.012.0001.
[36] Margaret Gaertner.
[37] Daniel Gorry and Erin Mangan.

defendants in the event that one or more of them is found to be liable to the plaintiff or one or more of the sample group members. The fourth set of issues are identified by a series of questions that mostly arise in the plaintiff's case but which affect all or at least most of the group members as well (ie, common questions).

Judgment Overview

45 This part of this Chapter summarises the effect of the findings in the balance of the judgment on the principal matters in dispute between the parties. It should not be taken as a substitute for or variation on the discussion and findings in subsequent Chapters.

The Manual

46 The starting point is the dispute over the meaning and application of the Manual. The relevant version of the Manual was approved by the Director General of the Department of Environment and Resource Management ("DERM") under s 371(2) of the *Water Supply (Safety and Reliability) Act 2008* (Qld) in December 2009 and gazetted in January 2010.[38] The Manual did not have the force of law, save that certain parts of it relating to the gate operating procedures at Wivenhoe Dam and Somerset Dam had effect as conditions of a development consent.[39]

47 Nevertheless, the Manual was of legal significance in three respects. First, the *Water Supply (Safety and Reliability) Act 2008* (Qld) exempted a dam owner who observed the operational procedures in the Manual from civil liability for any act or omission that was honestly made and without negligence.[40] If those conditions were met, any liability that the dam owner would otherwise incur is imposed on the State.[41] Second, in purporting to comply with the Manual, Seqwater conferred control over the dams on the flood engineers to commence and conduct flood operations. Third, the requirements of the Manual heavily informed the content of any duty of care owed by the flood engineers. One matter all the relevant experts agreed upon was the necessity for flood

[38] Chapter 4 at [157].
[39] Chapter 2 at [28].
[40] Section 374(2).
[41] Section 374(3).

engineers to follow the Manual. A reasonably competent flood engineer could not refuse to apply the approach stated in a flood mitigation manual because they disagreed with it.[42]

48 A vast number of issues were debated about the meaning and requirements of the Manual. At this point it suffices to state that, in large part, I accept the plaintiff's submissions as to its interpretation. Two particular matters should be noted.

49 First, any reasonable reader of the Manual, including any reasonably competent flood engineer, would have concluded that the Manual adopted an overall risk management approach to flood operations that acknowledged the uncertainties in forecasting rainfall and using forecasts to determine dam inflows and downstream flow but sought to address that uncertainty by requiring the flood engineers to address the flood objectives in their specified order. Thus, the Manual required the flood engineers conduct flood operations with the objective of ensuring dam safety and optimising protection against urban flooding ahead of the objectives of avoiding the inundation of rural bridges and retaining the dams at FSL at the conclusion of a flood event.

50 Second, any reasonable reader of the Manual, including any reasonably competent flood engineer, would have concluded that the Manual made rainfall forecasts a central component of the flood engineer's decision making processes. There are twelve references to rainfall forecasts in the Manual. Contrary to a suggestion of one witness, their inclusion in the Manual was certainly not a mistake.[43] The Manual unambiguously and stubbornly required that "best forecast rainfall" be used to make predictions for the purpose of determining the anticipated storage levels in the dams in order to select the applicable flood strategy.[44] The Manual directed that, within those strategies, consideration be given to the flood objectives in their order of priority. In turn, that required that rainfall forecasts be used in the determination of release rates, while still leaving some scope for professional judgment as to what

[42] Chapter 3 at [2].
[43] Chapter 4 at [160].
[44] Chapter 3 at [39].

forecast product to use and what those rates should be,[45] a matter I will return to.

51 As noted, one aspect of the defendants' case was that, even if it was considered that their suggested construction of the Manual was incorrect, the flood engineers nevertheless acted on a reasonable interpretation of the Manual and that it was open to a reasonably competent flood engineer to take the same approach. However, for the reasons explained in the balance of the judgment, even though Messrs Malone, Tibaldi and Ayre sought to explain their understanding of the disputed aspects of the Manual, it was to no avail for three reasons.[46] First, I was not persuaded that that was in fact their understanding during the January 2011 Flood Event. Second, I was not persuaded they gave effect to any such understanding during the January 2011 Flood Event. Third, in any event, the relevant understanding involved an unreasonable construction of the Manual. There was not a single instance where I was persuaded that any of the flood engineers took any impugned action during the January 2011 Flood Event based on a mistaken but reasonably held belief about the Manual's requirements.

52 In relation to their evidence generally, Mr Malone ultimately accepted in cross-examination that he had no recollection of how he interpreted and applied the Manual during the January 2011 Flood Event.[47] Otherwise, I found the evidence of Mr Tibaldi and Mr Ayre to be unreliable. I did not accept their evidence on any contested matter unless it was corroborated by independent evidence, which in most respects it was not.[48]

53 To that end, no support for any aspect of the flood engineers' evidence or approach was to be gained from considering their involvement in the process of revision of the Manual during 2009.[49] To the contrary, their deep involvement in its redrafting would only have reinforced to them the very significant changes that took place between the previous version of the Manual and the version the subject of these proceedings. The previous version of the Manual clearly

[45] Chapter 3; section 3.3.8.
[46] Chapter 3 at [128].
[47] T 5353.36 (Malone); Chapter 7 at [454].
[48] See Chapter 7; section 7.16.
[49] Chapter 4; section 4.5.

provided that flood strategies and the range of release rates were determined by observed reservoir levels.[50] The contrast between that version and the Manual as in force during January 2011, with its emphasis on flood objectives, predicted reservoir levels and repeated references to the use of rainfall forecasts, was dramatic.

54 Two further matters should be noted about the findings concerning the Manual. First, as noted, there was a large debate in the evidence about the utility of using forecasts in flood operations bearing in mind the limitations on their accuracy, the difficulty in modelling dam inflows and downstream effects using predicted rainfall and the potential consequences of making decisions to release or not release water based on forecasts that prove to be inaccurate or just plain wrong. To a large extent, much of this debate was resolved by the Manual. It mandated that forecasts be used while acknowledging the limitations on their accuracy.

55 Second, the findings made about the Manual tore a large hole in the case of the three defendants and their attempts to defend the flood engineers' conduct. As noted, one line of defence was that the selection of strategies was dictated by actual and not predicted storage levels and, to the extent that predictions were required, they had to be or could only be formed by reference to rain on the ground modelling and not rainfall forecasts.[51] For some of the defendants, this line of defence wavered. In any event, many aspects of the conduct of flood operations during the January 2011 Flood Event bore little resemblance to any of the suggested interpretations of the Manual.[52] Further, many of the experts called by the defendants accepted the fundamental principle that a reasonably competent flood engineer was obliged to conduct flood operations in accordance with the relevant water control manual.[53] However, when these experts were taken to the words of the Manual, they proved unable to explain how their postulated approach was consistent with its clear words. The result

[50] Chapter 4; section 4.2.
[51] Chapter 3 at [197].
[52] See Chapter 7 at [457] to [458] and [465] to [470].
[53] See Chapter 3 at [2].

was that, to varying degrees, I treated their evidence with greater scepticism than I otherwise would have.

Full Supply Level

56 It was common ground that both dams were built and operated to provide for water supply and flood mitigation. As noted, one of the issues debated between the parties was whether the flood engineers were legally prohibited from making releases for flood mitigation from below the FSL for each dam and, if not, in what circumstances could such releases be made?[54] I find that they were not legally prohibited from doing so. In particular, in 2010 Seqwater specifically sought and obtained an approval under clause 13 of the Moreton Resource Operations Plan which specifically permitted such releases for the purposes of flood mitigation.[55] Seqwater's attempts to attack the validity of the approval it sought and obtained fails. I also find that the Manual did not preclude such releases during flood operations after the reservoir level at Wivenhoe Dam first exceeded EL 67.25m AHD.[56]

57 The defendants adduced evidence which was directed to establishing the existence of a practice at other dams, principally in the United States of America, of not making releases for flood mitigation from that part of a reservoir behind a dam that is designated as the water supply pool. However, that evidence rose no higher than establishing that the regulatory regime in force at those dams prevented such releases. Thus, the only practice that was established was of not releasing water from a supply pool that was inviolable.[57] In light of the findings about the regulatory regime applicable to Wivenhoe and Somerset Dams, the establishment of such a practice was irrelevant. Similar findings to those just noted were made in relation to the flood engineers' evidence about their subjective beliefs in relation to making releases below FSL.[58]

---

[54] See Chapter 5 and Chapter 15 at [2].
[55] Chapter 5 at [29] to [73].
[56] Chapter 5; section 5.2.
[57] Chapter 5; section 5.3 and at [196].
[58] Chapter 5; section 5.4.

58 Otherwise, the utility of making releases from below FSL in flood operations, especially when heavy rain was forecast, was acknowledged by a number of witnesses.[59] However, in making them, the reasonably competent flood engineer had to pay regard to the Manual's fourth objective, namely that there should be no reason why storage should not be retained at FSL at the conclusion of a flood event.

Flood Operations During the January 2011 Flood Event

59 Each day of the January 2011 Flood Event and each shift of flood operations during the period from 6 to 12 January 2011 is addressed in detail in Chapters 6 and 7. At this point, eight matters should be noted.

60 First, while the rain that fell in the period from 9 to 11 January 2011 generally exceeded the amount of rain that was forecast, the forecasts and internal assessments that were produced nevertheless pointed to a strong likelihood of very large falls occurring during that period in what was an already saturated catchment. At all relevant times, there was a reasonable possibility of rainfall in, around and below the upstream catchments in amounts higher, sometimes much higher, than the forecasted amounts and which approximated to the amount of rain that actually fell.[60]

61 Second, as noted, from 2 January 2011 flood operations ceased. The duty flood operations engineer, Mr Malone, did not declare another flood event under the Manual until 6 January 2011. Throughout that period, both dams were above their FSL, substantial rain was predicted and significant rain fell from 5 January 2011. The failure to continue the flood event and the failure to declare a new flood event was completely inconsistent with the Manual.[61]

62 Third, although a flood event was declared on the morning of 6 January 2011 and solid rain continued throughout that day with much more rain forecast, releases did not commence until the afternoon of 7 January 2011 after natural downstream flows inundated Burtons Bridge. The failure to commence releases earlier was an instance of the flood engineers subverting the priorities

[59] Chapter 5 at [198].
[60] Chapter 6; section 6.2.
[61] Chapter 6; section 6.7.

of the Manual by seeking to avoid the inconvenience occasioned by bridge closures at the expense of guarding against the risk of urban inundation.[62]

63 Fourth, even after releases commenced on the afternoon of 7 January 2011 and despite the forecasts worsening, until midnight on 10 January 2011 the flood engineers maintained their approach of prioritising keeping the remaining bridges open. By that time, the amount of rain that had fallen, the prevailing rainfall forecasts and the reservoir levels pointed to the virtual certainty that flooding of urban areas would occur. Although there was some increase in releases throughout the period from 7 to 9 January 2011 inclusive, they were always held at levels below that necessary to inundate the remaining bridges. Throughout the entire January 2011 Flood Event, not a single bridge was inundated by a decision of the flood engineers to increase releases.[63]

64 Fifth, to the extent that, during the period from 6 to 9 January 2011 inclusive, the flood engineers were operating in accordance with any flood strategy specified for Wivenhoe Dam in the Manual it was Strategy W1. That strategy is directed to minimising disruption to rural life and specifically keeping low lying bridges open.[64] This approach was inconsistent with any interpretation of the Manual, including that put forward at various times by the flood engineers and the defendants during the hearing, which was that strategies were determined by observed reservoir levels. That is so because the observed water level of Wivenhoe Dam exceeded the relevant maximum level for Strategy W1, namely EL 68.5m AHD, at 8.00 am on 8 January 2011.[65] However flood operations continued after that time in a manner that was only consistent with that strategy. If the flood strategies had been selected by reference to a predicted reservoir level that included rainfall forecasts, as the Manual required, then, irrespective of the period of the forecast product that might have been used, at the very least that would have required the selection of Strategy W3 at a much

[62] Chapter 6 at [211] and [255] to [267].
[63] Chapter 6; sections 6.12; 6.13; Chapter 7; sections 7.1 to 7.3; Chapter 7 at [472].
[64] Chapter 3 at [46] to [52].
[65] Chapter 7 at [14].

earlier time.[66] Strategy W3 prioritised the protection of urban areas from inundation.[67]

65 Sixth, on 10 January 2011 an increase in releases from Wivenhoe Dam was delayed because of a concern that combined flows at Moggill above 3500m3/s might cause over the floor flooding whereas the Manual dictated that the relevant level was 4000m3/s.[68] Further, on 9 and 10 January 2011, there was an increase in releases from Somerset Dam that was disproportionate to the relatively low releases from Wivenhoe Dam. This contributed to the rise of Wivenhoe Dam levels.[69]

66 Seventh, although the flood engineers asserted that rainfall forecasts were used to acquire a so-called "situational awareness" and to curtail releases, in substance they ignored them. The flood engineers never determined the applicable flood strategy in the Manual based on a predicted reservoir level (much less a predicted reservoir level that utilised a rainfall forecast), never determined to release water because rainfall was forecast to fall in catchments above the dams, never determined a volume of water to be evacuated based on a rainfall forecast, never determined to increase releases because of a concern that forecast rain might fall downstream at a later time and impede releases at that time and did not undertake any modelling that used forecast rainfall as the basis for flood operations.

67 In substance, the flood engineers' actions were, at best, only determined by rain on the ground assessments. In particular, the amount of water they determined to evacuate was always only based on a rain on the ground assessment which was directed to a planning horizon of no more than 12 to 15 hours ahead. That period was far too short having regard to both dams' capacity and the catchment flow times above and below the dams.[70] Although they may have remained cognisant of the rainfall forecasts, the flood engineers were always effectively assuming that no forecast rain would fall above the dams while at the same time assuming that forecast rain would or might fall

[66] Chapter 7 at [94] to [105], [210], [254] to [260].
[67] Chapter 3 at [54].
[68] Chapter 7 at [328] to [336].
[69] Chapter 7 at [262] to [263], [326] to [327], [383] to [385].
[70] Chapter 7 at [469] to [470].

below the dams but only during their short planning horizon of 12 to 15 hours with no rain to fall thereafter. This approach underestimated the amount of water that needed to be evacuated and overestimated the capacity of the dams to release water beyond that 12 to 15-hour period. This approach was fundamentally contrary to the Manual. It ignored the Manual's method of strategy selection and meant that "[w]ithin any strategy … decisions on dam releases" did not involve a consideration of the flood objectives in their order of priority.[71]

68 Eighth, there is no doubt that the conduct of flood operations during the January 2011 Flood Event was highly stressful and exhausting. In those circumstances, there was always the potential for honest but genuine mistakes to have been made. It follows that considerable caution needs to be, and has been, exercised against making post-event criticisms with the luxury of time and hindsight. However, the identified failings of the flood engineers do not concern decisions they made in the heat of the moment. Instead, they derive from a failure of approach, specifically a failure to follow the very Manual that they had drafted or participated in drafting almost 18 months previously.

Dr Christensen's Evidence

69 In light of these findings I come to Dr Christensen. It was ultimately accepted on the part of the plaintiff that it was not in itself sufficient to merely show a flood engineer could have, or might have, undertaken flood operations in accordance with one of Dr Christensen's simulations. Instead, it had to be shown that they would or must have done so.[72] I have approached his simulations in that manner and in accordance with the analysis of the appropriate standard of care relevant to a reasonably competent flood engineer.[73] However, the analysis of his evidence was undertaken in a context where the defendants did not seek to put forward some alternative methodology that was said to involve the use of rainfall forecasts and conform to the plaintiff's interpretation of the Manual. The defendants drew a battle line at the point of bitterly opposing the use of rainfall forecasts in flood operations

[71] Manual at 1 and 23.
[72] Chapter 9 at [2].
[73] Chapter 10 at [1].

in any manner other than the limited use made of them made by the flood engineers. They lost that battle.

70 In Chapter 8, I address and reject the attacks on Dr Christensen's honesty and impartiality. I accept that that he is sufficiently qualified to express the opinions he did, although his lack of experience in real-time flood operations and lack of detailed knowledge of Australian forecast products have affected my preparedness to accept particular aspects of his methodology.[74] I do not accept that he consciously constructed his methodology and simulations with the benefit of hindsight. Although I commenced my consideration of his evidence with a strong scepticism that his hindsight knowledge of how the January 2011 Flood Event transpired may have subconsciously affected his evidence, that scepticism slowly dissipated as Dr Christensen responded to a skilled forensic grilling over weeks in the witness box. I am satisfied that the approach he outlined in most respects flowed from his interpretation of the Manual's requirements, an interpretation I largely accept. In contrast to many of the defendants' witnesses, Dr Christensen addressed what the Manual actually states. He did not seek to make the express words of the Manual conform to his preconceptions of how dam operations should have been conducted.

71 Dr Christensen outlined a proposed methodology for flood operations which broadly involved conserving flood storage when catchment conditions and forecasts indicated that there was a risk that the storage volume may be insufficient to contain predicted inflows and then using the storage to reduce the magnitude (or peak) of the release of water from the dams, thus ensuring that the timing of the peak release did not coincide with high downstream flows.[75]

72 In essence, Dr Christensen's approach involved four steps. His first step was to select a strategy in the Manual based on modelling inflow volumes from the eight-day weather forecast for above the dams and predicting the likely storage level on the assumption that no releases are made. His second step was to make an assessment of whether reservoir storage should be created (ie, make

[74] Chapter 8 at [19].
[75] Chapter 8 at [51].

releases greater than inflows) or filled (ie, allow inflows to exceed releases). If it was decided to increase storage, his third step was to select a release rate.[76] In some of his simulations, this was undertaken by selecting a "target level" to lower the reservoirs to. Using the four-day forecast, Dr Christensen predicted an inflow volume and then determined the period over which that amount would be released. The determination of that period and hence the release rate had regard to a number of factors including downstream conditions, the effect of shorter and longer term forecasts, reservoir levels and the extent to which releases might take the dams below their respective FSLs. In relation to the latter factor, in his primary simulations[77] Dr Christensen used the four-day inflow estimate as the outer limit to which the dams could be taken below FSL. The fourth step in Dr Christensen's proposed methodology was to regularly reconsider his approach, especially in light of changing conditions including the publication of updated rainfall forecasts.[78]

73 As noted, in the end result Dr Christensen put forward ten simulated counterfactual flood operations for the January 2011 Flood Event. The simulations had different start dates and governing assumptions. Some of those assumptions were at variance from Dr Christensen's primary methodology as just outlined. Consistent with what I have stated already, the defendants' attacks on this methodology were ferocious and detailed. They are addressed in Chapter 9 and Chapter 10. What follows here is a brief précis of the findings concerning his simulations and those criticisms.

74 While I accept that Dr Christensen's overall methodology was consistent with the Manual, in the end result I am not persuaded that four particular aspects[79] of his approach represent aspects of flood operations that a reasonably competent flood operations engineer would have adopted.

75 First, I am not persuaded that a reasonably competent flood engineer was required to use an eight-day forecast for the purpose of predicting reservoir

---

[76] Chapter 8 at [52].
[77] Simulations A, E and I.
[78] Chapter 8 at [50] to [61].
[79] In addition to these four matters I was also not satisfied that a reasonably competent flood engineer would only end a flood event if the high end of the eight day PME forecast indicated that there was no reasonable possibility of exceeding FSL: Chapter 10 at [193].

levels under the Manual to select strategy. The Manual refers to the use of "best forecast rainfall and stream flow information" for the purpose of determining the maximum storage levels in the Dams and determining peak flow rates downstream. The evidence suggested that the most accurate forecast was the one-day Quantitative Precipitation Forecast ("QPF") issued by the Bureau of Meteorology (the "BoM"). While that was the best forecast product available for assessing downstream flow rates it was not the best for predicting upstream dam inflows because the size and configuration of the upstream catchments means that 24 hours represents too short a planning period for determining strategy and making release decisions.

76 That said the evidence concerning the reliability of the eight-day forecast was such that I consider that it would be open to a reasonably competent flood engineer to reject its use in determining strategies and releases under the Manual.[80] Nevertheless the evidence concerning the reliability of the four-day forecast[81] combined with the necessity to make assessments for periods longer than 24 hours meant that it represented the forecast product that a reasonably competent flood engineer was obliged to use for this purpose[82] provided that the approach to modelling and releases addressed its uncertainties, which Dr Christensen's does. Beyond this, there was debate about the manner of identifying a depth and location of rainfall from the four-day forecast and then the approach to modelling a predicted inflow volume from that forecast.[83] In the end result, I am satisfied that any legitimate debate about those matters is not material to my acceptance of three of Dr Christensen's simulations.[84]

77 Second, so far as making releases below FSL are concerned, I am not persuaded that a reasonably competent flood engineer would or must have adopted an approach of being prepared to make releases below FSL to the depth where they could be refilled by an estimate of inflows based on the four-day forecast.[85] However, I am satisfied that, at least in the circumstances

[80] Chapter 9 at [61].
[81] Ie, the four-day PME.
[82] Chapter 9 at [128].
[83] Which is addressed in sections 9.3 to 9.6.
[84] Namely, Simulation C, F and H.
[85] Chapter 10 at [222].

prevailing in January 2011, a reasonably competent flood engineer would have conducted flood operations on the basis of releasing below FSL to an amount that was no more than the volume represented by the one-day forecast (ie, the QPF) if it was otherwise necessary to meet the Manual's objectives. In January 2011, the four and eight-day forecasts were pointing to much larger rainfall than the QPF and that was at a time that was only part way through a rainfall season influenced by a La Niña event. A flood engineer who released to below FSL by an amount that was no more than the predicted inflow from the QPF forecast would have had a very high level of satisfaction to the point of almost certainty that, at the conclusion of the flood event or shortly afterwards, each dam would be at its respective FSL.[86]

78 Third, the defendants criticised many aspects of the approach in Dr Christensen's simulations on 11 January 2011 when reservoir levels would have approached and, in some simulations, exceeded EL 74.0m AHD. I reject the defendants' criticisms of his approach save that, in respect of those simulations in which the simulated reservoir level would have exceeded EL 74.0m AHD, I accept that a reasonably competent flood engineer could have adopted[87] certain alternative gate openings suggested by an expert called on behalf of SunWater, Mr Andrew Ickert.[88]

79 Fourth, two of Dr Christensen's simulations[89] assumed that the crest gates at Somerset Dam could be opened and closed during flood operations. Given the uncertainty associated with the failure level of Somerset Dam if the crest gates are closed, I do not accept that a reasonably competent flood engineer would have adopted that assumption.[90]

80 Otherwise, I note that a considerable amount of evidence was adduced concerning the practices at other dams in Australia and overseas.[91] This was undertaken with the general objective of establishing that Dr Christensen's approach, especially his use of forecasts, was a departure from a supposed

[86] Chapter 10 at [178].
[87] In the sense of being the most favourable to the defendants.
[88] Chapter 9; section 9.7 at [329].
[89] Simulations I and J.
[90] Chapter 9 at [346].
[91] Chapter 9; section 9.1.

usual or proper practice of only conducting flood operations based on rain on the ground modelling and was thus unreasonable. It was also adduced with the specific objective of supporting the invocation of s 22 of the *CLA* (Qld). It failed at both levels. No such practice was established in relation to Australian dams.[92] More significantly, what the evidence revealed is that whether or not rainfall forecasts are to be used in flood operations is a decision that is usually recorded in the relevant water control manual and not a decision made by the flood engineers conducting flood operations. Whether they are so used and recorded is usually a product of an analysis of conditions specific to the particular dam, including its location, purpose, priorities, timing of upstream flows, timing of downstream flows, catchment characteristics, dam capacity, forecast capacity and the stability of the seasonal weather.[93] In this case, the position of the Manual on the topic of rainfall forecasts was very clear.

81 The findings that were made about the operation of the crest gates at Somerset Dam invalidated two of Dr Christensen's simulations, namely Simulation I and Simulation J. The findings made about the use of the eight-day forecast, the use of the four-day forecast as a limit on releases below FSL, a residual concern about the use of Dr Christensen's "target" method, as well as concerns over the sensitivities of the calculation of inflow volumes based on four-day forecasts, were such as to leave me unsatisfied that a reasonably competent flood engineer would have conducted flood operations in accordance with Dr Christensen's Simulation A and Simulation E.[94]

82 Simulation C was modelled to commence on 2 January 2011. Unlike Dr Christensen's primary methodology, Simulation C used one-day forecasts as the basis for selecting strategy and making releases. In light of the finding about the use of four-day forecasts that assumption represented a conservative one from the plaintiff's perspective. Simulation C also used the one-day forecast as the outer limit at which it would seek to make releases below FSL. Although there was a debate about whether arithmetical errors in the calculation of inflow volumes based on one-day forecasts affected the

[92] Chapter 9 at [5].
[93] Chapter 9 at [4].
[94] Chapter 10; sections 10.3 and 10.5.

validity of the simulation, that dispute falls away in light of the finding about the utilisation of the four-day forecast.

83 Both Simulations F and H were modelled to commence at midnight on 8 January 2011. Simulation F utilised eight-day forecasts to select strategies whereas Simulation H used one-day forecasts in a manner similar to Simulation C. Nevertheless, both simulations were relevantly identical. This is so because from the evening of 7 January 2011 all forecasts of whatever duration required the adoption of at least Strategy W3 and the making of the maximum possible releases up to the point that the downstream threshold for non-damaging flows, namely 4000m3/s at Moggill, was not exceeded. It follows that the finding about the utilisation of four-day forecasts supports both Simulations F and H.

84 With Simulations C, F and H, many of the defendants' objections to Dr Christensen's primary methodology and modelling either did not arise or, if they did, upon closer analysis they were either not established or not sufficiently material to invalidate them. Any scope for legitimate disagreement as to the interpretation of a particular forecast, the appropriate continuing loss rates, the estimation of inflow volumes, concerns over the capacity of Wivenhoe Dam to refill to FSL and the use of the "target" approach (or some other "quantitative" use of four-day forecasts to set releases) were immaterial to their acceptance.

85 Accordingly, for the reasons set out in the balance of the judgment, I am satisfied that a reasonably competent flood engineer who inherited the circumstances prevailing as at midnight on 2 January 2011 would have, at a minimum, made flood releases substantially in accordance with Simulation C up to and including 9 January 2011 and made flood releases substantially in accordance with the simulation thereafter.[95] Similarly, I am satisfied that a reasonably competent flood engineer who inherited the circumstances prevailing as at midnight on 8 January 2011 would have made releases substantially in accordance with Simulation F and Simulation H as varied by Table 18 to Mr Ickert's Response Report dated 30 November 2017.[96] Of these

[95] Chapter 10 at [188].
[96] EXP.SUN.009.0001 at .0292; Chapter 10 at [56].

simulations, Simulation C represents the most favourable to the plaintiff and it is the appropriate counterfactual for causation purposes.

Duty of Care and Breach

86 I accept that Seqwater and each of the flood engineers owed a duty of care in the terms alleged by the plaintiff.[97] The exercise of control over releases at Wivenhoe Dam conferred a significant level of control over flows in the Brisbane River downstream of the dams, although the precise level of that control differed on whether the relevant river location was upstream or downstream of the confluence of the Brisbane River and Lockyer Creek and the confluence of the Brisbane River and the Bremer River. This level of control corresponded to a significant but not complete level of control over the risk of flooding from the Brisbane River breaking its banks. Persons who had an interest in real and personal property which by reason of its location downstream and its elevation was susceptible to flooding from the Brisbane River breaking its banks or flooding in the lower part of Lockyer Creek and the Bremer River were correspondingly vulnerable to any negligent exercise of the power of control over dam outflows exercised by Seqwater and the flood engineers. Although the class of persons to whom such a duty was owed was very large that did not render it indeterminate in the sense used in the authorities.[98] The matters raised by the defendants that were said to be inconsistent with the existence of such a duty of care did not negate its existence.[99]

87 I also accept that SunWater owed a duty of care but it was only owed only in respect of the provision of "flood management services" pursuant to its agreement with Seqwater.[100] I do not accept that either Seqwater or SunWater owed a non-delegable duty of care.[101]

88 Otherwise, I accept that each of Seqwater, SunWater and the State are vicariously liable for any breaches of the duty of care owed by the flood

---

[97] Chapter 11; sections 11.1 to 11.2.
[98] Perre v Apand (1999) 198 CLR 180; [1999] HCA 36 at [336]; Chapter 11 at [56].
[99] Chapter 11; section 11.2.
[100] Chapter 11; section 11.4.
[101] Chapter 11; section 11.3.

engineers that they each employed. The standard of care owed by the flood engineers was that of the reasonably competent flood engineer. In the end result, no issue under s 36(2) of the *CLA* (Qld) arises because the liability of each defendant is a true vicarious liability, that is a liability arising from a breach by a flood engineer in respect of a duty of care owed by a flood engineer. None of the flood engineers are "public or other authorities" for the purposes of s 36. Thus, no question arises as to the wrongfulness of the exercise of, or the failure to exercise, a function of a public or other authority before each flood engineer's liability is attributed to the defendants. In any event, in relation to each of the defendants it was not established that this was a proceeding that is based on an alleged wrongful exercise of, or failure to exercise, a function of a public or other authority.[102]

89 Section 22 of the *CLA* (Qld) is potentially engaged in respect of the breaches alleged against the flood engineers but all the attempts to invoke it fail as a matter of fact.[103]

90 The plaintiff's case in nuisance fails as it was not demonstrated that there was an unreasonable interference with its use and enjoyment of its interest in land.[104] The claim in trespass also fails.

91 In relation to negligence, the allegations of breach of duty are addressed in Chapter 12. I do not accept that the plaintiff's case on breach is tied to establishing that on each and every day of the January 2011 Flood Event the relevant flood engineer failed to act in accordance with one or more of Dr Christensen's simulations. Instead, the allegations of breach are addressed in a manner consistent with the findings concerning the Manual and so much of Dr Christensen's simulations and methodology that I have accepted were required of a reasonably competent flood engineer, that also being reflected in the acceptance of Simulations C, F and H.[105] In that regard, I am satisfied that Mr Malone committed breaches of duty during the period he was duty flood operations engineer from 2 to 6 January 2011, that thereafter each of the flood

[102] CLA (Qld); s 36(1); Chapter 11 at [191] to [213].
[103] Chapter 11 at [219] to [234].
[104] Chapter 11 at [257].
[105] Section 12.2.

engineers committed breaches of duty while they were on shift during the period from 6 to 10 January 2011 and that Mr Ayre committed a breach of duty when he was not on duty but still supervising flood operations as the Senior Flood Operations Engineer.

Causation

92 Beyond the acceptance of simulation C as the relevant counterfactual flood operation, two significant issues were litigated in relation to causation. The first was the utility of Dr Altinakar's modelling for the purpose of determining, on the balance of probabilities, what the level of inundation would have been had outflows from Wivenhoe Dam accorded with Dr Christensen's simulations, including Simulation C. The second was whether causation in respect of all "greater flooding" occasioned by the flood engineers' breaches of duty could be established in respect of a particular flood engineer, specifically Mr Ruffini, who was only on duty for a limited period during the January 2011 Flood Event.

93 In relation to the first issue, although there were criticisms of Dr Altinakar's modelling, the only expert evidence that was adduced in response to it raised only a few limited objections to his modelling. They are addressed in Chapter 13 along with the balance of the defendants' criticisms. Otherwise that expert, Mr Neil Collins, described Dr Altinakar's modelling as "pretty impressive",[106] although he also asserted that there was a superior hydraulic model available that was commissioned as a result of the Brisbane River Catchment Flood Study ("BRCFS"). That other model was not tendered such that the assertion as to its superiority is only that. However, the concession that Dr Altinakar's modelling was "pretty impressive" remained.

94 Overall I am satisfied that Dr Altinakar's modelling is sufficiently reliable that, when considered with other evidence, it supports findings on the balance of probabilities as to whether or not the plaintiff's store would have been inundated by flood water if the flood engineers had conducted flood operations substantially in accordance with Simulation C.[107] Leaving aside Ms Harrison,[108] the same applies in relation to Dr Altinakar's modelling of the inundation of the

[106] Chapter 13 at [102].
[107] Chapter 13 at [2], [254].
[108] Ms Harrison's home was not inundated under Simulation C: see Chapter 13, section 13.4.8.

homes of the other sample group members, although it is not possible at this stage to address every aspect of the causation component of their cases. That must await the identification of the "particular harm" they each seek to recover damages in respect of. However, Dr Altinakar's modelling is not to be treated as determinative of the precise level of flooding under Simulation C at every downstream location. There were some aspects of uncertainty demonstrated with his modelling, specifically its simulated flood levels within two kilometres of an inflow discharge[109] and a discrepancy of up to 200m3/s at the peak of a boundary inflow discharge utilised by the modelling on the Bremer River just past its confluence with Warrill Creek.[110] Instead, Dr Altinakar's modelling must be considered together with all the other evidence concerning flooding at a particular location. The framework for that assessment, should it be necessary to undertake, is set out in Chapter 13.[111]

95 In relation to the second issue concerning causation, I am satisfied that each of the flood engineer's breaches of duty, including those of Mr Ruffini, were necessary to complete a set of conditions that were jointly sufficient to account for the occurrence of the particular harm at the plaintiff's store and such other forms of particular harm at, or to, group members' property that is proven to be the result of the difference in outflows between the events that happened and Simulation C. This is sufficient to satisfy s 11(1)(a) of the *CLA* (Qld) in respect of each flood engineer's breaches of duty. Subsection 11(1)(b) is also satisfied.[112]

96 In relation to the property of the plaintiff and the sample group members, I am satisfied on the balance of probabilities that:[113]

(i) in respect of all relevant loss and damage proven to have been suffered by the plaintiff from the inundation of its store and the shopping centre that it formed part of, duty, breach and causation have been established against each of the defendants;

---

[109] Chapter 13 at [60].
[110] Chapter 13 at [225] and [237].
[111] Section 13.4.9.
[112] Chapter 13; section 13.5.
[113] Chapter 13 at [4]; section 13.4.3 to 13.4.8.

(ii) in respect of such loss and damage that was occasioned to Mr and Mrs Keller, Ms Visser and Ms Lynch from the inundation of their homes (and Ms Lynch's shed and cottage), duty, breach and causation have been established against each of the defendants; and

(iii) it has not been established on the balance of probabilities that, but for the defendants' breaches of duty, the flooding would not have reached above the ground level of the storage facility at which Ms Harrison's shipping container was stored.

97 For the reasons set out in Chapter 13, should it be necessary, the balance of the causation issues in respect of the sample group members should be litigated together with all quantum issues concerning them.

Quantum and Cross-Claims

98 A number of issues concerning the quantum of the plaintiff's claim were litigated. All of them are addressed in Chapter 14. Two of the issues were said to have implications for group members. The first was the effect on the plaintiff's claim for damages of certain grants received from the Queensland Rural Adjustment Authority under the "Special Disaster Assistance (November 2010 to January 2011) Scheme". As discussed in Chapter 14, those grants were paid under a statutory scheme that effectively conferred an entitlement on small businesses to be reimbursed for particular costs incurred as a result of flood damage during the January 2011 Flood Event.[114] To the extent that the plaintiff and other group members seek recovery of a cost item or invoice in respect of which they received a grant, then their damages will be reduced accordingly. I am satisfied that the Legislature did not intend that a flood victim recover twice in respect of the same invoice or cost item.

99 The second issue was whether the plaintiff can recover the commercial cost of the time spent by Mr Rodriguez and various volunteers known as the "mud army" in cleaning up its store and cleaning and repairing stock. For the reasons given in Chapter 14,[115] the answer is "yes".

---

[114] See Chapter 14 at [43] to [50].
[115] Chapter 14 at [75] to [77].

100 Each of the defendants filed cross-claims against each other. The plaintiff has only been successful in negligence and that part of its claim is an "apportionable claim" within the meaning of s 28(1) of the *CLA* (Qld).[116] It follows from that conclusion that all of the cross-claims for contribution fail.[117] Seqwater's cross-claim against SunWater also included a claim for damages for breach of the agreement between them. The damages claimed are for any liability that Seqwater incurs in favour of the plaintiff and group members as well as its costs of defending the proceedings. These forms of damage are all forms of "consequential loss" which Seqwater is contractually excluded from recovering from SunWater.[118] Accordingly, Seqwater's cross-claim against Sunwater fails.

Further Conduct of the Proceedings

101 It follows from these findings that the plaintiff succeeds in its negligence claim against all of the defendants, as will presumably many, but not all, of the group members. After I pronounce answers to the common questions, I will make orders standing the proceedings over to February 2020 to allow the parties to consider the judgment and plan the next steps in the litigation.

****

Consolidated Table of Contents	148 KB, pdf	39.1 KB, docx
Chapter 2: Background	1.58 MB pdf	6.59 MB, docx
Chapter 3: The Flood Operations Manual and The Flood Procedure	1.07 MB, pdf	642 KB, docx
Chapter 4: Flood Procedures, Policies and Operations until the end of 2010	799 KB, pdf	1.04 MB, docx
Chapter 5: Full Supply Level	557 KB, pdf	185 KB, docx
Chapter 6: The January 2011 Flood Event to 7 January 2011	1.12 MB, pdf	763 KB, docx

[116] Chapter 14; section 14.2.
[117] Chapter 14 at [94].
[118] Chapter 14 at [104].

Chapter 7: The January 2011 Flood Event from 8 January 2011	1.18 MB, pdf	555 KB, docx
Chapter 8: Dr Christensen's Evidence and Methodology	539 KB, pdf	481 KB, docx
Chapter 9: Dr Christensen's Methodology - Defendant's Criticisms	1.68 MB, pdf	1.74 MB, docx
Chapter 10: Dr Christensen's Simulations	1.15 MB, pdf	664 KB, docx
Chapter 11: Duty of Care, Standards of Care, Vicarious Liability and Nuisance	718 KB, pdf	242 KB, docx
Chapter 12: Breach of Duty	582 KB, pdf	202 KB, docx
Chapter 13: Causation	2.08 MB, pdf	5.83 MB, docx
Chapter 14: Quantum, Cross-Claims and the Limitation Period	335 KB, pdf	133 KB, docx
Chapter 15: Common Questions and Future Disposition	195 KB, pdf	81.5 KB, docx
Appendices A to C	8.11 MB, pdf	
Appendices D to L	3.52 MB, pdf	